

REMARKS

Claims 1-27 are pending. They cover method of fabricating a polymer waveguide, comprising (a) forming a first polymer film in proximity to a substrate, the first polymer film comprising a nonlinear optical chromophore; (b) poling and crosslinking the first polymer film to provide a crosslinked first electro-optic polymer film; (c) forming a second polymer film comprising a nonlinear optical chromophore in proximity to the first electro-optic polymer film; and (d) poling the second polymer film to provide a second electro-optic polymer film; wherein the first polymer film forms an optically transmissive core, said core comprising: a surface that receives light and is substantially orthogonal to the input direction of light into the core; and a length, along which light propagates, having a linear dimension greater than either of the two linear axes that define the surface area.

Claims 1-3, 15-20 and 27 stand rejected over Nutt (USP 5,322,986), in view of Dorn et al. (USP 5,319,492) and Zhang et al. (USP 6,558,585); claims 4-14 and 21-26 stand rejected over Nutt in view of Dorn et al. and Zhang et al., and further in view of Oh et al. in Appl. Phys. Lett. 2000, 76(24):3525-3527. None of the references discloses or suggests Applicants' claimed method for at least the following reasons.

Dorn does not "disclose these general steps in forming a waveguide..." Dorn discloses a reflecting optical switch. Reflecting optical switches are entirely different from waveguides, both in terms of structure and operation. A person of ordinary skill in the field of optical waveguide design and manufacture would not turn to references related to reflecting optical switch designs and manufacture for solutions. Applicants' waveguide includes a first polymer film, forming an optically transmissive core. As discussed in a previous response, there is no optically transmissive core in the optical switch of Dorn; Dorn's optical switch is configured to reflect light off of the top surface of the device.

Nutt does not disclose all the steps required by claim 1 because Nutt's waveguide lacks a second polymer film altogether.

Zhang fails to disclose poling according to the protocol set forth in Applicants' claims. The poling method used by Zhang recites creating the un-poled device in its entirety, then placing the device in a poling apparatus to effect molecular alignment of chromophores. Applicants' methods, as noted above, include the steps of forming a poled, crosslinked core

layer, followed by a second process to achieve two poled polymer films in proximity. The degree of poling and/or crosslinking can be adjusted using Applicants' claimed method. If (which is *not* the case), Applicants' method included placing the entire waveguide device into a poling apparatus, as per the method taught by Zhang, presumably *all* chromophores in each polymer layer would undergo the same degree of poling, which destroys one purpose of Applicants' device.

Claims 4-14 and 21-26 were rejected as being unpatentable over Nutt in view of Dorn and Zhang, and further in view of Oh et al. The waveguide device disclosed by Oh et al. is, from a mechanical point of view, equivalent to the device disclosed by Zhang, albeit with different materials being present in the nonlinear medium. There is no second polymer film in proximity to a first polymer film in Oh's waveguide, as required by Applicants' claim 1. Oh does not make up for the deficiencies in Nutt, Dorn, and Zhang discussed above, and Applicants respectfully request allowance of claims 4-14 and 21-26.

All of the claims as presented herein are in condition for allowance. Applicants respectfully request removal of the obviousness rejection based on the disclosed references because they do not show, nor motivate, a successful combination of elements to meet Applicants' claimed device and methods for making same.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

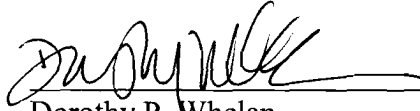
Applicant : Louis J. Bintz et al.
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Respectfully submitted,

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Dorothy P. Whelan
Reg. No. 33,814

Fish & Richardson P.C.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696